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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,628	02/11/2002	Douglas N. Kimelman	YOR920020022	4524

7590 07/05/2005

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EXAMINER	
RAMPURIA, SATISH	

ART UNIT	PAPER NUMBER
2191	

DATE MAILED: 07/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/073,628	KIMELMAN ET AL.	
	Examiner	Art Unit	
	Satish S. Rampuria	2191	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *03* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 March 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Amendment

1. This action is in response to the amendment received on 03/28/2005.

2. The objection to use of trademarks is withdrawn in view of applicant's amendment.

3. The rejections under 35 U.S.C. §112 second paragraph to claim is withdrawn in view of applicant's amendment.

4. The rejection under 35 U.S.C. §101 to claims 1-6 claim is withdrawn in view of applicant's amendment.

5. Claims amended by the applicant: 7, 8, and 12.

6. Claims pending in the application: 1-12.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –
(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1 and 7 rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 6,550,053 to Muckley (hereinafter called Muckley).

Per claim 1:

Muckley discloses:

- A method for minimizing total cost of interaction among components of a computer program, each of said components being characterized by at least one implementation property (col. 3, lines 32-33 "a computer program for performing a method of estimating the time"), said method comprising the steps of:
- a) carrying out at least a partial run of said program (col. 7 and 8, lines 66 and 1-2 "the process... on a computer having a database... data and time details... inserted and running a program");
- b) monitoring said at least partial run of the program to measure an amount of interaction between each pair of components (col. 2, lines 48-50 ""analyzing... object-oriented design... time estimate required, to determine the numbers data");
- c) determining a cost of interaction between each pair of interacting components (col. 3 and 4, lines 67 and 1-2 "values for the respective multipliers are calculated from the numbers of the object-oriented elements of each type");
- d) determining a choice of implementation properties which minimizes total cost of said at least partial run (col. 2, lines 24-28 "selecting initial random values... performing multiple iterations, whilst adjusting the values... until a best-fit between a respective estimated time and the actual time taken for the first previous design is achieved");
- e) assigning said choice of said implementation properties to said components for a subsequent at least partial run of said program (col. 2, lines 28-35 "applying the numbers data from a second previous design and the values of the multipliers obtained... and corresponding to the best fit to the formula... adjusting the values of the multipliers, until a best fit between the respective estimated time and the actual time

taken for the second previous design is achieved").

Claim 7 is the computer program product claim corresponding to method claim 1 and rejected under the same rational set forth in connection with the rejection of claim 1 above.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 2-5 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muckley in view of **admitted prior art**.

Per claims 2 and 4:

The rejection of claim 1 is incorporated, and further, Muckley does not explicitly disclose said implementation property comprising a choice of string representation of a component, said amount of interaction measured in step (b) comprising a frequency of interaction between each pair of interacting components; said cost of interaction comprising a function of said frequency and a cost of converting any differing string representations of said pair to a common string representation.

However, admitted prior art discloses in an analogous computer system said implementation property comprising a choice of string representation of a component, said amount of interaction measured in step (b) comprising a frequency of interaction between each

pair of interacting components; said cost of interaction comprising a function of said frequency and a cost of converting any differing string representations of said pair to a common string representation (Applicant's specification, page 2, lines 9-12 "Many computer programs, which consist of a number of program components, manipulate implementation properties such as string representations and data structure for which any of a number of implementation properties can be used").

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the method of choice of string representation of a component as taught in admitted prior art in corresponding to method of estimating the time for the object oriented software development as taught by Muckley. The modification would be obvious because of one of ordinary skill in the art would be motivated include the choice of string representation to provide any string optimization as suggested in admitted prior art (page 2, lines 23-29).

Per claim 3:

The rejection of claim 2 is incorporated, and further, Muckley does not explicitly disclose wherein at least one string represented is selected from ASCII, UNICODE, and EBCDIC.

However, admitted prior art discloses in an analogous computer system wherein at least one string represented is selected from ASCII, UNICODE, and EBCDIC (Applicant's admitted prior art, page 2, lines 12-13 "string representations that can be used include: UNICODE, ASCII, and EBCDIC").

The feature of string represented is selected from ASCII, UNICODE, and EBCDIC would be obvious for the reasons set forth in the rejection of claim 2.

Per claim 5:

The rejection of claim 3 is incorporated, and further, Muckley does not explicitly disclose wherein at least one data structure is selected from hash, tree, and compressed data structures.

However, admitted prior art discloses in an analogous computer system wherein at least one data structure is selected from hash, tree, and compressed data structures (Applicant's admitted prior art, page 2, lines 13-14 "data structures that can be used include: trees, compressed files and hash tables").

The feature of data structure is selected from hash, tree, and compressed data structures would be obvious for the reasons set forth in the rejection of claim 2.

Claims 8-11 are the computer program product claim corresponding to method claim 2-5 respectively, and rejected under the same rational set forth in connection with the rejection of claim 2-5 respectively, above.

11. Claims 6 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muckley in view of US Patent No. 5,598,559 to Chaudhuri (hereinafter called Chaudhuri).

Per claim 6:

The rejection of claim 1 is incorporated, and further, Muckley does not explicitly disclose wherein the step (d) of determining the choice is carried out by building a graph with nodes

representing program components and edges that join adjacent nodes representing interaction therebetween, each edge being characterized by a cost of each interaction, then using a graph cutting technique to find a minimum cut of the graph.

However, Chaudhuri discloses in an analogous computer system wherein the step (d) of determining the choice is carried out by building a graph with nodes representing program components and edges that join adjacent nodes representing interaction therebetween, each edge being characterized by a cost of each interaction, then using a graph cutting technique to find a minimum cut of the graph (col. 1 and 2, lines 66-67 and 1-13 "execution plan is a tree data structure... leaf-node is a scan operation... the execution of an operation represented by a given node is always preceded by the execution of the operations represented by the children of the given node... in a relational database management system a query having at least one Group-By operator is optimized... procedure includes the steps of receiving a query having a group-by operator to be optimized, generating for the query execution plans wherein internal nodes representing group-by operations are placed preceding every internal node representing a join operation, considering each such execution plan, and choosing the execution plan having the lowest estimated cost").

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the method of characterizing the join node to minimize the cost for implementing as taught by Chaudhuri into the method of estimating the time for the object oriented software development as taught by Muckley. The modification would be obvious because of one of ordinary skill in the art would be motivated to build nodes to provide more efficient execution as suggested by Chaudhuri (col. 1, lines 41-60).

Claim 12 is the computer program product claim corresponding to method claim 6 and rejected under the same rational set forth in connection with the rejection of claim 6 above.

Response to Arguments

12. Applicant's arguments with respect to claims have been considered but they are not persuasive.

In the remarks, the applicant has argued that:

(i) Neither cited portion of Muckley nor the rest of the teaching disclose or discuss b) monitoring said at least partial run of the program to measure an amount of interaction between each pair of components, c) determining a cost of interaction between each pair of interacting components, d) determining a choice of implementation properties which minimizes total cost of said at least partial run and e) assigning said choice of said implementation properties to said components for a subsequent at least partial run of said program, as recited in claim 1.

(ii) Claim 6 is not rendered obvious by the combination of Muckley with Chaudhuri because the Office Action has shown no teaching, motivation, or reason for combining the references as suggested by the Office Action.

Examiner's response:

(i) Muckley discloses time estimator for software development which would optimize the execution of program (see cols. 1 to 3). The limitations as recited in claim 1 does

disclose by Muckley. More specifically, for subject matter of element (b), Muckley discloses monitoring the program by analyzing the objects-oriented program (see the rejection above). For subject matter of element (c), Muckley discloses calculating the best-fit value for the multiplier to design the program (see the rejection above). For subject matter of element (d), Muckley discloses calculation is performed to get the best-fit value to minimize the program to least objects (see the rejection above). For subject matter of element (e), Muckley discloses applying the number form the previous design the get the best-fit value to minimize the execution time of the program (see the rejection above). Applicant only makes general allegations and does not point out any errors in the rejection. Therefore, the rejection is proper and maintained herein.

(ii) In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, teaching, motivation, or reason for combining the references can be found on page 8 of previous and this Office Action. Applicant only makes general allegations and does not point out any errors in the rejection. Therefore, the rejection is proper and maintained herein.

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Satish S. Rampuria** whose telephone number is **(571) 272-3732**. The examiner can normally be reached on **8:30 am to 5:00 pm** Monday to Friday except every other Friday and federal holidays. Any inquiry of a general nature or relating to the status of this application should be directed to the **TC 2100 Group receptionist: 571-272-2100**

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Tuan Q. Dam** can be reached on **(571) 272-3695**. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Satish S. Rampuria
Patent Examiner
Art Unit 2191
06/27/2005

TUAN DAM
SUPERVISORY PATENT EXAMINER